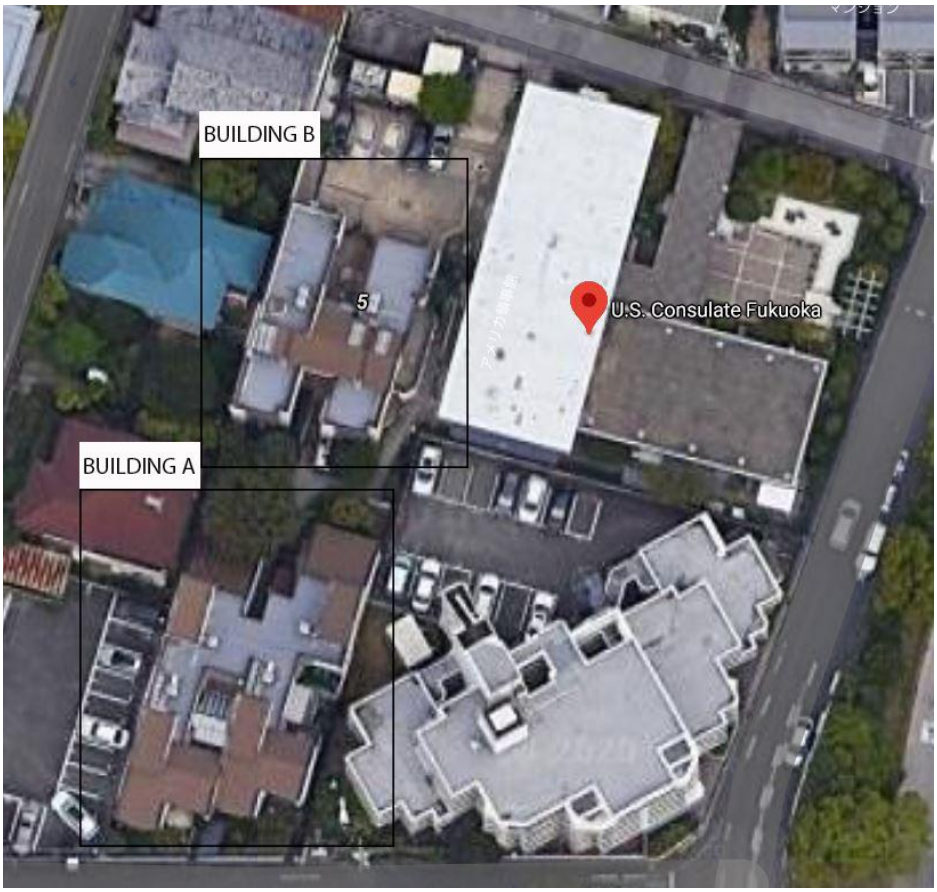
SECTION C – STATEMENT of WORK

STAFF DIPLOMATIC TOWNHOUSES ROOF COATING REPAIR
Fukouka, Japan

April 10, 2020



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OVERSEAS BUILDINGS OPERATIONS
FACILITY MANAGEMENT
Roof & Façade Management Program
WASHINGTON DC

PART ONE – GENERAL

C.1.1 SUMMARY:

A. The U.S. Consulate Fukouka and Overseas Building Operations (OBO) Facility Management has a requirement for a solvent-based elastomeric roof coating and roof related repairs on the existing two-story Staff Diplomatic Townhouses (SDA). The Townhouses structure consist of steel and wood framing with a wood roof deck substrate. In 2005, the flat roof membrane was replaced with a single-ply PVC membrane on adhered 100mm roof insulation board. The sloped metal roofs are in good condition and do NOT require repair.

B. Roof Square Footage
   1. Townhouse A: 1,350 Square Feet + 260 linear feet perimeter base flashings
   2. Townhouse B: 1,650 Square Feet + 375 linear feet perimeter base flashings

C. The proposed flat roof repair coating includes, but is not limited to, the following:
   1. Clean/Pressure wash flat roof areas and allow to dry.
   2. Perform minor repairs to membrane seams and patch all holes.
   3. Apply one coat primer on all surfaces and allow to dry.
   4. Apply first base coat on all surfaces and allow to dry.
   5. Apply second base and fabric on all surfaces and allow to dry.
   6. Apply two finish coats over all surfaces and allow to dry.

C.1.2 SUBMITTALS:

A. Contractor's executed bonds and insurance certificate.
B. Contractor’s crew individual identification information for background checks.
C. Submit list of other subcontractors with evidence of insurance coverage.
D. Project schedule showing work phasing and proposed daily progress.
E. Construction Accident Prevention Plan (CAPP)

C.1.3 SUBSTITUTIONS AND PRODUCT OPTIONS:

A. Contractor's Representation: Request for substitution constitutes a representation that Contractor:
   1. Has investigated proposed product and determined that it is equal to or superior in all respects to that specified.
   2. Shall coordinate installation of accepted substitution into Work and make such other changes as may be required for Work to be complete in all respects.
   3. Waives all claims for additional costs, under his responsibility, related to substitution which subsequently becomes apparent.
   4. If substitution is not approved or accepted, Contractor shall furnish specified product.

C.1.4 QUALITY CONTROL:

A. The Consulate and OBO has the right to inspect and test all services, to the extent practicable at all times and places during the work. OBO may perform full time quality assurance inspections [QAI] and tests during construction to confirm the work is installed according to the Construction Documents.

B. Maintain quality control over suppliers, manufacturers, products, services, site conditions, and workmanship to produce work of specified quality.

C. Contractor shall be approved by manufacturer to perform the work for the specified guarantee period.

C.1.5 STORAGE OF MATERIALS:

A. Proper storage of materials is the sole responsibility of Contractor. Keep all labels intact and legible, clearly showing the product, manufacturer, and other pertinent information.

B. Store materials on site. Cover and protect materials subject to damage by weather, including during transit. Stored materials shall be available for inspection.

C. Store flammable and volatile liquids in sealed containers located a minimum of 20 feet from existing buildings.

D. Store roll goods in an upright position.

E. Distribute material, debris, and equipment over the roof deck to avoid damage to the structural deck. Place materials and equipment to be stored on the roof as nearly direct over structural members as can be determined. Secure equipment, material, and debris on the roof to prevent movement by wind or other elements.

C.1.6 TEMPORARY FACILITIES:

A. Temporary Water:

1. Make arrangements with Consulate for water required for construction. Consulate will pay for cost of water.
2. Do not disrupt existing water service to the building.
3. Provide hoses for conveyance.

B. Temporary Electrical

1. Make arrangements with Consulate for temporary electrical service. Consulate will pay energy charges for temporary power and lighting.
2. Notify Consulate prior to each required interruption of mechanical or electrical services in building.
3. Provide all necessary temporary wiring extensions and temporary lighting devices.

C. Temporary Ladders, Chutes, Scaffolds, Hoists and Cranes:

1. Furnish and maintain temporary ramps, scaffolds, hoists, or chutes as required for proper execution of Work.
2. Provide overhead protection at all building entrances.
3. Restrict debris removal to approved area of building site.
4. Restrict location of construction cranes to areas as approved by Embassy.
5. Such apparatus, equipment, and construction shall meet requirements of applicable local safety and labor laws.

C.1.7 PROJECT PROCEDURES:

A. Consulate will occupy premises during entire period of construction for the conduct of normal, daily operations. Contractor shall conduct their operations so as to ensure least inconvenience to Consulate's operations.

B. Contractor shall take precautions to avoid excessive noise or vibration that would disturb Consulate's operations.

C. The contractor shall identify a Project Site Manager who shall be responsible for the overall management of the project and shall represent the contractor on the site during construction. The Project Site Manager shall speak English.

D. Work shall be performed during regular office hours between 8:00 a.m. and 4:00 p.m. Some work may be carried out during the weekends or after hours as advised by the COR/POSHO. The contractor shall not have access to the building interior except with the permission by the Consulate.

C.1.8 PROJECT SAFTEY:

A. Contractor is responsible for safety and shall comply with all local labor laws, regulations, customs and practices pertaining to labor, safety and similar matters. Contractor shall prepare a Construction Accident Prevention Plan to cover total project safety.

B. The products being used for this roof coating repair give off vapors while curing. Close and seal all doors and windows near and around work area. Close off and seal all HVAC air intake points, goose necks, and vents with duct tape and polyethylene sheeting. Shutting down the HVAC may be necessary during the work so as not to affect the equipment.

C.1.9 PROJECT SECURITY:

A. Personnel Clearances: Labor Background checks will require a minimum of 21 days for clearance.

D. Vehicle Clearances: Submit authorization requests, to include dates, vehicle type, license number, and driver name, for each motorized vehicular implement used on-site.

C. Access to Site: Contractor shall have limited access to or be admitted into the compound outside the areas designated for the project except with permission by the Consulate.

PART TWO - PRODUCTS

C.2.1 SOLVENT-BASED ELASTOMERIC ROOF COATING MANUFACTURERS

A. Provide a high-performance base primers, intermediate coatings, and topcoats made of a proprietary blend of solvent-based polymers (SBS, SEBS, PMMA); that are from single source manufacturer. All accessory materials shall be compatible with one another and with the substrate for application.

B. Product Manufacturers which meet the specifications include but are not limited to:

1. **Architectural Roof Coatings** - Rowlett, TX
2. **Karnak** - Clark, NJ
3. **US Ply -** Fort Worth, TX
4. **SIKA Corporation** - Lyndhurst, NJ
5. **Alternate Manufacturers** shall equal these product specifications.

C.2.2 MATERIALS and ACCESSORIES

A. Finish Topcoat: Single-component high solids polymer elastomer. The coating forms a non-breathing, high tensile strength and a highly elastic membrane which is designed to provide heat reduction, cold weather flexibility, chemical, weather and water resistance. Brush, roller, or spray grade. Bright white in color:

1. DynaSHIELD White Coating by Architectural Roof Coatings
2. RC-W Elasto-Kote by KARNAK
3. All Season SEBS Roof Coating by US Ply
4. Sikalastic Lo-VOC Liquid Membrane by Sika
5. Physical Properties:
   a. Solids by Weight (D1644): 50 ± 2%
   b. Solids by Volume (D2697): 37 ± 2%
   c. Weight per Gallon: 9.1 lbs.
   d. Reflectance (Initial/Aged): 82% / 61%
   e. Emittance (Initial/Aged): 0.95 / 0.91

B. Primer Coat for adhesion to single-ply EPDM and TPO membranes.: Single-component polymer blend elastomer; brush, roller, or spray grade; semi-transparent in color:
   1. DynaSHIELD HP Primer by Architectural Roof Coatings
   2. ENERGYSIL SP Base Coat by US Ply
   3. Sikalastic GDC Primer
   4. Physical Properties:
      a. Solids by Weight (D1644): 8.17 ± 2%
      b. Solids by Volume (D2697): 11.21 ± 2%
      c. Weight per Gallon: 7 lbs.

C. Flashing Cement: Trowel grade single component, block copolymer elastomeric mastic that forms as a tough and durable elastomeric membrane. The mastic has elongation properties, cold weather pliability, UV and water resistance, chemical resistance and a highly reflective finish. May also be used in sealing interfaces with accessories such as drains, scuppers, and pitch pans.
   1. DynaSHIELD Flashing Grade by Architectural Roof Coatings
   1. 502 RC-W Elasto-Kote Seam Sealer by KARNAK
   2. All Season SEBS Flashing Grade by US Ply
   3. Sikalastic 500 Flash by Sika
   4. Physical Properties:
      a. Solids by Weight (calculated): 68 ± 2%
      b. Solids by Volume (calculated): 52 ± 2%
      c. Weight per Gallon: 9.4 lbs.

D. Polyester Reinforcing Fabric and Tape: Flexible 100% stitch bond polyester fleece sheet product of high tear strength and elongation and type or composition recommended by manufacturer for embedment of elastomeric coating. White in color. Weight: 0.9 pounds/100 SF. Size: 100mm, 150mm, and 1000mm (40 inch) width rolls:
   1. Topester by GAF/TopCoat
   2. M600 Polyester Fabric" by MEGA Industries.
   3. 3036 Poly-Mat by KARNAK
   4. Physical Properties:
      a. Tensile Strength (ASTM D-1682): 57 lbs.
      b. Elongation (ASTM D-1682): 61.5%
      c. Mullen Burst (ASTM D-3786): 175 lbs

E. Accessories and Cleaners: Supplied and/or recommended by manufacturer for product installation.
   1. Power Washer: minimum 3500 PSI / 250cc gasoline powered engine mounted on wheels with 10 meter hose and adjustable spray pressure nozzle
   2. Power Drill & Mixing Paddle: heavy duty for cement, plaster, or paint. Such as Nordstrand PWTPM01 Pro Mixer Stirring Tool; 6 Speed; 1800Watt with 120mm round steel mixing paddle bit.
   3. Caulking: Single component, non-sag elastomeric polyurethane sealant, as recommended or supplied by membrane manufacturer for use in making airtight and watertight seals such as Dynatrol I by Pecora Corp., white color.
   4. Cleaning Solvent: 100% hydrocarbon for diluting solvent based coating products and cleaning
   5. Mineral Spirits for thinning solvent based coatings
   6. Roller Frames and Roller Sleeves; 225mm
   7. Brushes; 50mm, 100mm, 150mm widths

F. Membrane Repair Ply: Un-plasticized Polyvinyl Chloride (PVC) Sheet Membrane: ASTM D 4434/D 4434M, Type III, fabric reinforced for UV stable exposure membrane for field heat-wielded applications.

G. Miscellaneous Fasteners: Appropriate for purpose intended, length required for thickness of material. Replacement fasteners may be one size larger in diameter and depth. Select fastener finish metal to be compatible or of same metal as substrate.

PART THREE - EXECUTION

C.3.1 PREPARATION OF SUBSTRATE

A. Contractor shall determine the condition of the existing structural deck/substrate. All defects in the deck or substrate shall be corrected before new solvent-based elastomeric coating commences. Areas of deteriorated deck/substrate, porous or other affected materials must be removed and replaced with new to match existing.

B. Surface preparation is the most critical procedural requirement in paint applied coating systems. Remove all loose particles, delaminated paint, oil, grease, laitance, efflorescence, mild, mildew and other foreign materials. Areas shall be first scraped, swept clean, and then thoroughly power washed. Use high power adjustable pressure washer with a minimum 3500 PSI (Pounds per Square Inch) mechanical spray device.

C. The contractor is responsible for removing or relocating all existing material and equipment as necessary to access the roof surface including but not limited to pipes, conduits, wiring, pavers, hoists, etc.

D. Each individual container of elastomeric primer and top coats shall be thoroughly mixed using a heavy duty drill on slow RPM (Revolutions per Minute) with an elongated mixing paddle bit that will reach the bottom of the container. Coating shall be a uniform color, with no light or dark streaks present.

E. Coatings shall be applied in temperatures of fifty degrees Fahrenheit (50°F / 10°C) or greater.

C.3.2 SINGLE-PLY SUBSTRATE

A. Repair delaminated or unsound membrane surfaces for preparation of coating application. Membrane area abrasions, tears and splits shall be primed and fabric patched. Larger areas require flashing cement to build-up the area smooth with adjacent surfaces. Overlap fabric onto existing field and base flashing surfaces a minimum of 150 mm.

B. Substrate shall receive a polymer primer for adhesion to single-ply surfaces.

C.3.3 THINNING SOLVENT-BASED ELASTOMERIC FOR SPRAY EQUIPMENT

A. Thinning Mix: One quart mineral spirits to 5 gallons solvent-based elastomeric.

1. Pour 1 gallon from a 5 gallon pail coating into another container. Add one quart mineral spirits to 4 gallons and mix thoroughly. Use an electric drill and mixing paddle. Add portions of the removed 1 gallon and continue to mix until the coating is properly thinned.
2. Spray apply thinned elastomeric coating in two coats to meet minimum thickness.

B. Additional Thinning Mix: Maximum two quarts mineral spirits to 5 gallons elastomeric.

1. Spray apply thinned elastomeric coating in three coats to meet minimum thickness.

C. DO NOT thin elastomeric coatings for brush or roller applications.

C.3.4 PRIMER APPLICATION

A. Coverage rate: Apply primer at 0.7–1.4 gallons (2.65-5.30L) per 200 square feet (18 SM)

B. Brush, roll or spray the elastomeric primer evenly onto the surface to fully saturate the substrate in one application with brush or roller; multiple applications with sprayer. DO

NOT allow primer to pond or collect in low areas. Apply primer up to the perimeter roof edge of the flashing terminations and penetrations.

C. Allow standard primer to cure for a minimum of twelve (12) hours before beginning base coats.

D. DO NOT apply base coat over primer prematurely exposed to excessive moisture, primer used as temporary waterproofing, or primer older than eight (8) days. Exposure of the primer in excess of eight (8) days may require removal and application of new primer.

C.3.5 FIRST BASE COAT APPLICATION

A. Coverage rate: Apply base at 0.7–1.4 gallons (2.65-5.30L) per 100 square feet. (9 SM)

B. Brush, roll or spray the elastomeric base coat evenly onto the surface to fully saturate the substrate in one application with brush or roller; multiple applications with sprayer. DO NOT allow base to pond or collect in low areas. Apply base coat up to the perimeter roof edge of the flashing terminations and penetrations.

C. Areas observed with residual "bleed" through of prior surfacing causing discoloration shall be re-coated to prevent discoloration.

D. Allow standard base coat to cure for a minimum of four (4) hours before reinforcing fabric embedment into second coat of base coat.

C.3.6 SECOND BASE COAT APPLICATION and REINFORCING FABRIC EMBEDMENT

A. Coverage rate: Apply base at 0.7–1.4 gallons (2.65-5.30L) per 100 square feet. (9 SM)

B. Reinforcing fabric embedment requires either hand brush or roller application to evenly lay the fabric within the base coat. The base shall be rolled or brushed liberally and evenly onto the surface using a broad, even strokes.

C. The fleece fabric can only hold so much base coat and all excess shall be rolled forward to the unsaturated fleece, eliminating ponding or excessive build-up.

1. Reinforcing Fabric Full Coverage: Roll out polyester fleece with smooth side facing up (natural unrolling procedure) into the primer. The fleece will begin to rapidly saturate with the liquid coating.
2. Use a medium nap roller or brush to work the primer into the fleece, saturating from the bottom up, and eliminating air bubbles, folds and wrinkles.
3. The appearance of the saturated fleece shall be light opaque with no white spots. White spots are indications of unsaturated fleece or lack of adhesion
4. Allow 75mm overlap for all side joints and 100mm overlap for all end joints.

E. Apply final coat of base on top of fleece fabric to finish the saturation of the fleece. Roll this final coating into the fleece, shall result in a semi-gloss appearance.

F. Allow second base to cure for a minimum of twenty four (24) hours before finish coats.

C.3.7 FLASHING DETAILING

A. Using a trowel, apply flashing grade cement at any areas where there are roof terminations, penetrations, flashings, seams or transitional joints. It may be applied to both horizontal and vertical surfaces and will bridge gaps up to 12mm in width.

B. Reinforcing fabric may be embedded in flashing cement for additional strength and mobility. Fabric must be used around penetrations and to bridge large openings.

C. Reinforce all inside and outside corners with a 100mm diameter conical piece of fabric prior to installing the flashing layer.

D. Flashing is typically constructed as a two part assembly consisting of a vertical wrap and a horizontal target patch. There must be a minimum of a 100mm overlap between vertical and horizontal flashing components.

E. Flashing material shall extend 100mm minimum onto drains, scuppers, or insert flanges.

C.3.8 FINISH TOP COAT APPLICATION

A. Coverage rate: Apply finish top coats at 0.7–1.4 gallons (2.65-5.30L) per 100 square feet (9 SM). Based on first finish coat smooth texture, the second top coat may be reduced to 0.5 gallons (2.50L) to 100 square feet (9 SM).

B. Brush, roll or spray the elastomeric top coat evenly onto the surface to fully saturate the primed surfaces in one application with brush or roller; multiple applications with sprayer. DO NOT allow coating to pond or collect in low areas.

C. Apply elastomeric top coat up to the perimeter roof edge of the flashing terminations and penetrations.

D. Allow to cure for a minimum of twenty four (24) hours before second finish coat.

E. DO NOT allow any excess coating to remain on the surface, the correct amount of coating will leave no fibrous surface texture from the fleece fabric. The final coating should be smooth, uniform, and bright white.

F. Dry finish (1 prime coat + 2 base coats + 2 top coats) thickness: 48 mils.

C.3.9 FIELD QUALITY CONTROL

A. The Consulate or OBO may direct Contractor to stop applying coatings if results show materials being used do not comply with specified requirements or coating materials and accessories are not compatible. Contractor shall remove noncomplying coating materials from site, pay for testing, and recoat surfaces.

C.3.10 CLEANING and ADJUSTING

A. After completing coating application, clean spattered surfaces. Remove spattered coatings by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

B. During progress of work, remove discarded paint materials, rubbish, cans, and rags from site at end of each work day. Thoroughly mixed and cured coating products may be disposed of in standard landfills. Uncured products are considered a hazardous material and must be handled as such, and disposed in accordance with local regulations.

C. Contractor is responsible for reinstalling all disconnected equipment after the completion of coating works to include but not limited to resetting rooftop equipment on protective pads, reconnecting pipes, conduit, wiring, hoists, placing the relocated/removed pavers back to their original position, etc.

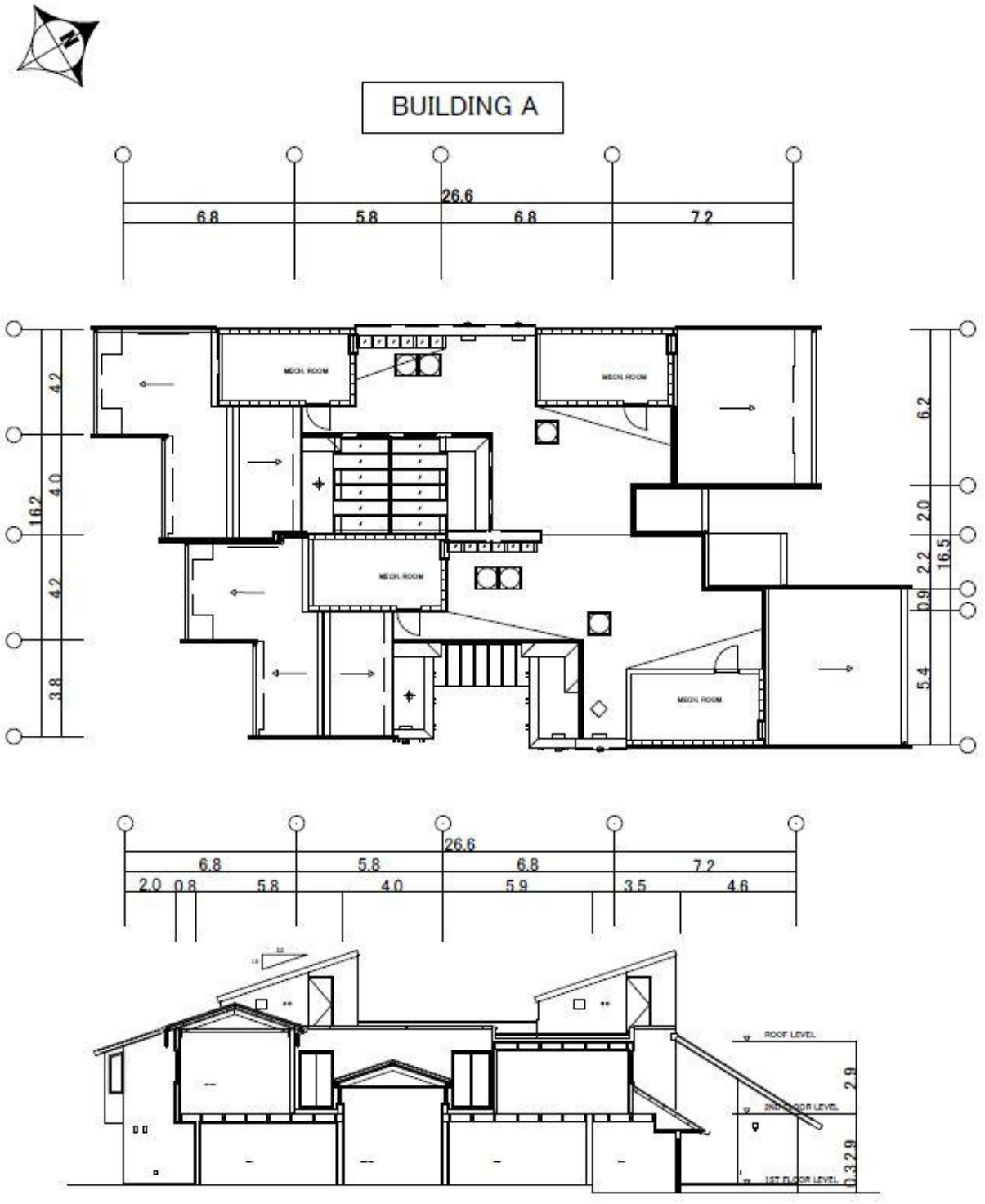
D. Reactivation of the equipment to its original condition shall be provided by Contractor.

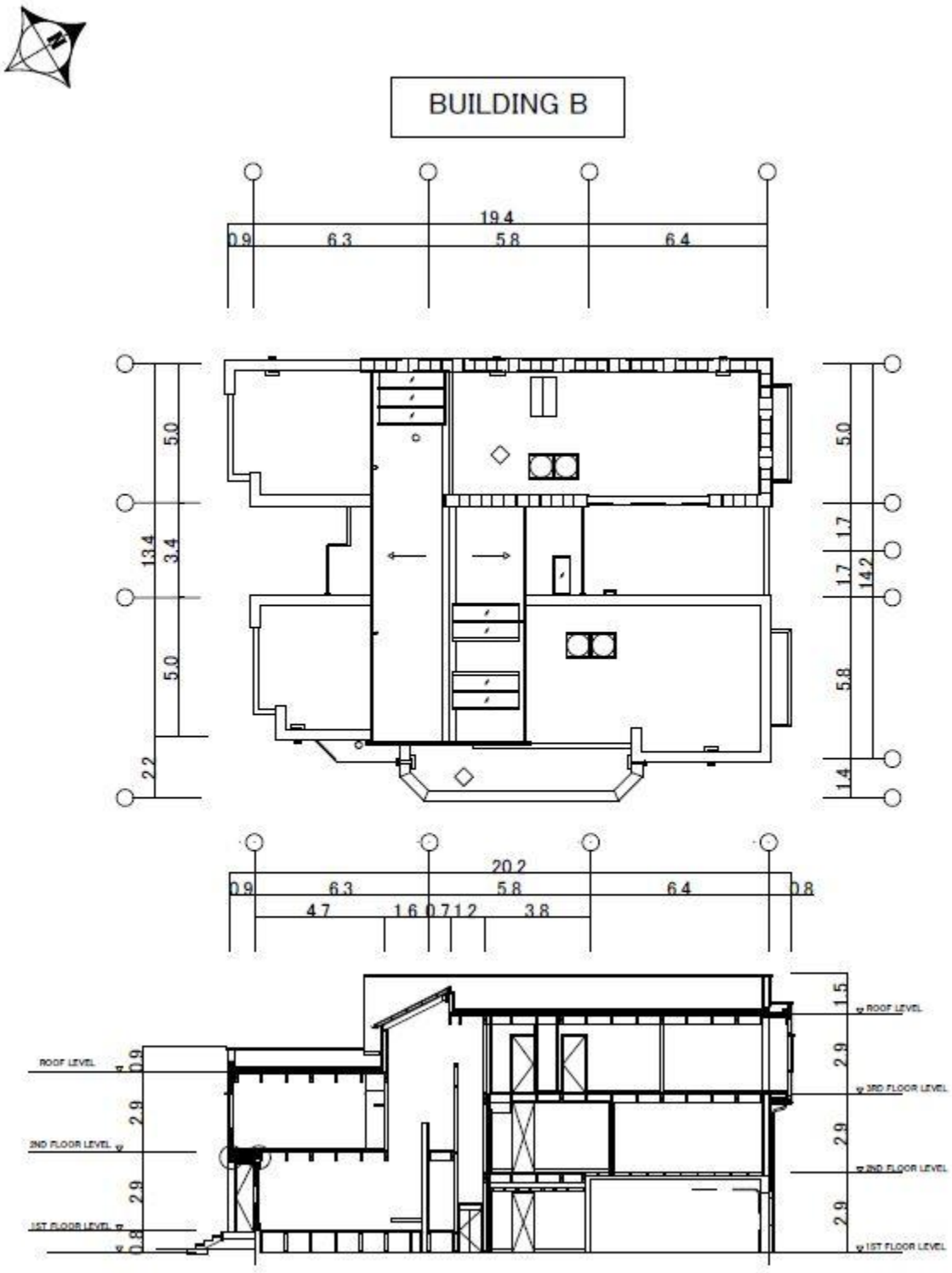
E. Correct any damage by cleaning, repairing or replacing, and painting as acceptable to the Consulate.

PART FOUR - SCHEDULE

C.4.1 PERIOD OF PERFORMANCE:

A.	Solicitation & Award of Contract:		
	1.	Pre-Proposal Site Visit	To be determined
	2.	Award	Zero Day
B.	Pre-Construction Submittals:		
	1.	Insurance & Bonding:	10 days after Award
	2.	Schedule & Product Data:	20 days
	3.	OBO & Consulate Approval:	10 days
	4.	Crew Information:	10 days
	5.	Consulate Review:	20 days
C.	Mobilization & Construction:		
	1.	Repair Roof Area A	15 days
	2.	Repair Roof Area B	15 days
	3.	Final Cleanup Begins:	2 days prior to completion
D.	TOTAL DAYS ON-SITE		30 days on-site
E.	**TOTAL PERIOD of PERFORMACE:**		**100 days**
F.	Winter/Rainy Season:		December to April


BUILDING A
26.6
6.8
5.8
6.8
7.2
MECH. ROOM
MECH. ROOM
MECH. ROOM
MECH. ROOM
4.2
16.2
4.0
4.2
3.8
6.2
2.0
2.2
0.9
16.5
5.4
26.6
6.8
5.8
6.8
7.2
2.0
0.8
5.8
4.0
5.9
3.5
4.6
ROOF LEVEL
2ND FLOOR LEVEL
1ST FLOOR LEVEL
2.9
3.2.9


BUILDING B
19.4
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6.3
5.8
6.4
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3.4
5.0
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14.2
5.8
1.4
20.2
0.9
6.3
5.8
6.4
0.8
4.7
1.6
0.7
1.2
3.8
ROOF LEVEL
2ND FLOOR LEVEL
1ST FLOOR LEVEL
0.9
2.9
2.9
0.8
1.5
2.9
2.9
2.9
ROOF LEVEL
3RD FLOOR LEVEL
2ND FLOOR LEVEL
1ST FLOOR LEVEL

C.6.0 TYPICAL ROOF COATING STEPS

POWER WASH PREPARATION

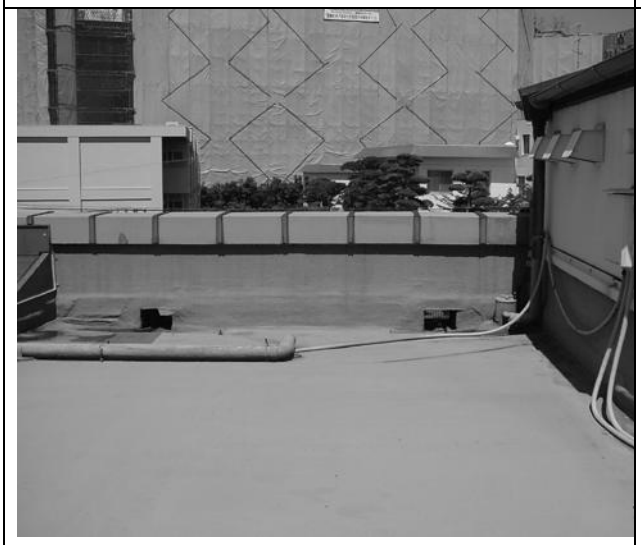
PRIMER, BASE & REINFORCING FABRIC

SECOND COATS

FINAL FINISH (& ENERGY EFFIECIENT)

C.6.1 ROOF PHOTOGRAPHES

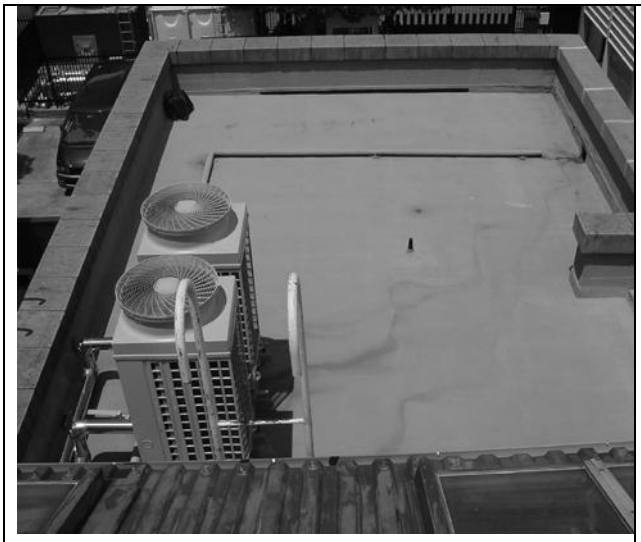
RESIDENCE A – Roof01	RESIDENCE A – Roof02
	
RESIDENCE A – Roof03	RESIDENCE A – Roof04
	

RESIDENCE A – Roof05	RESIDENCE A – Roof06
	
RESIDENCE A – Roof07	RESIDENCE A – Roof08
	

RESIDENCE B – Roof01	RESIDENCE B – Roof02

	
RESIDENCE B – Roof03	RESIDENCE B – Roof04
	

RESIDENCE B – Roof05	RESIDENCE B – Roof06

	
RESIDENCE B – Roof07	RESIDENCE B – Roof08
	

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